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Editor

CHARLES H. KEENE, M.D.
University of Buffalo, Buffalo, N. Y.

Assistant Editors

GERTRUDE E. CROMWELL, R.N.
Denver, Colorado

H. F. KILANDER, Ph.D.
Washington, D. C.

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THE JOURNAL OF SCHOOL HEALTH

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Vol. XXII JUNE, 1952 No. 6

ADMINISTRATIVE AND PERSONNEL ASPECTS OF SCHOOL HEALTH SERVICES*

H. F. KILANDER, Ph.D.

This paper is a partial report of a study[1] of school health services in cities of 2,500 and above made by the U. S. Office of Education in co-operation with the American Medical Association and the U. S. Public Health Service. The last previous study[2] of a similar nature was made by the Office of Education in 1940.

In 1950, the American Medical Association sent a questionnaire to the local medical societies for information supplementing that obtained from local educational authorities in this study. A digest of American Medical Association study[3] appeared in the June 1951 issue of *The Journal of School Health.*

Survey Procedure

The information presented in this report has been obtained through two questionnaires. The first one was mailed out during the school year 1949-50, and the second one during the school year 1950-51. To simplify the use of dates in the report, the year 1950 is used as the reference date.

On the first questionnaire, information was requested as to whether a school system had school health services available. Also requested was information about the authority administering and financing the school health program, and the personnel available for school health services. This questionnaire was mailed to superintendents of schools in each of the 3,430 cities in the Continental United States having a population of 2,500 or more, as based on the latest (1940) census information available at that time. Of this number of cities, 3,186, or 92.9 percent, replied.

The second questionnaire included a variety of questions concerning specific phases of the school health service program, such

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* Read before the Annual convention of the American School Health Association, San Francisco, California, October 29, 1951.

1 H. F. Kilander. *Health Services in City Schools.* Office of Education, Federal Security Agency, Washington, U. S. Government Printing Office. (To be available in late summer, 1952.)

2 James F. Rogers. *Health Services in City Schools.* Office of Education, Federal Security Agency, Washington, U. S. Government Printing Office, 1942. 50 pp.

3 Fred V. Hein and Donald A. Dukelow. *Physician Participation in School Health Services.* Chicago, The American Medical Association, 1950. 62 pp.

as the medical and dental examinations. The Public Health service and the American Medical Association co-operated in the preparation of the questionnaire. It was sent to each of the 1,012 cities with a population of 10,000 or more which had reported having school health services, and a fifty percent sampling was made of the 1,874 cities with a population of 2,500 to 9,999 which had reported school health services. The total number of usable returns was 1,566 or 79.4 percent.

In analyzing the data, a breakdown was made on the basis of city size as follows: Group I—100,000 (93 cities); Group II—30,000 to 99,999 (259 cities); Group III—10,000 to 29,999 (724 cities); and Group IV—2,500 to 9,999 (2,354 cities).

The information has also been studied by State groupings based on the nine census regions which are New England, Middle Atlantic, East North Central, West North Central, South Atlantic, East South Atlantic, West South Central, Mountain, and Pacific.

The Number of School Health Services

The school superintendents to whom the questionnaire was sent were asked to check whether health services were available in their respective school systems. The following statement, intended to serve as a guide to the respondent in answering the question, appeared on the questionnaire: "For the purposes of the questionnaire, the ONLY phases of the school health service program to be considered are (a) the medical examination, and (b) the dental examination or inspection."

A summary of the number and percent of school systems having a school health service is presented in Table 1. There were

Table 1.—Number of cities in the United States having a school health service in 1950

City population group	Number of cities	Cities reporting		Cities having a school health service	
		Number	Percent	Number	Percent
1	2	3	4	5	6
Continental United States	3430	3186	92.9	2886	90.6
Group I (100,000 and above)	93	93	100.0	93	100.0
Group II (30,000 to 99,999)	259	253	97.7	251	99.2
Group III (10,000 to 29,999)	724	687	94.9	668	97.2
Group IV (2,500 to 9,999)	2354	2153	91.5	1874	87.0

3,186 school systems in the United States replying to the questionnaire. Of this number, 2,886, or 90.6 percent, reported the presence of school health services.

In Table 2 a comparison is made between the number of school systems reporting school health services for the years 1930, 1940, and 1950. It is shown in this table that there has been a progressive increase in the number of cities having a school health service in some stage of development. For example, in 1930, of the 60 percent of cities replying, 90 percent in Group I and 83 percent in Group III reported a school health service. In 1940, the corresponding percentages were 99 and 98 with about 70 percent of the cities replying. In 1950, the percentages were about the same as for 1940, but with nearly all (93 percent) school systems returning the questionnaire.

By city size.—All the 93 cities in Group I, which comprises the cities with a population of 100,000 or more, replied and all reported that they had school health services.

Of the 259 cities in Group II, comprising cities with a population of 30,000 to 99,999, 253 replied to the first questionnaire. All except 2, or 99.2 percent, reported that they had school health services.

Of the 724 cities in Group II, cities with a population of 10,000 to 29,999, 687 replied to the questionnaire. All except 19, or 92.2 percent, reported they had school health services.

Of the 2,354 cities in Group IV, which includes cities with populations between 2,500 and 9,999, 91.5 percent replied. Of those replying, 87.0 percent reported they had some type of school health service.

By region.—Two of the nine regions—New England and Middle Atlantic—report that all city school systems have health services. The percentages of cities in the other seven regions having health services are, in descending order: Pacific (97.3), East North Central (91.5), South Atlantic (91.2), Mountain (88.3), East South Central (85.3), West North Central (81.4), and West South Central (71.0).

Administration

Two questions on the first questionnaire dealt with the agencies administering and financing the school health program. For each question there were four choices, namely, "Board of Education," "Board of Health," "Jointly," and "Other."

Table 2.—Comparison of the number of school health services reported in 1930, 1940, and 1950

City population group	1930[1] Number of cities	Cities reporting Number	Cities reporting Per cent	Health services available Number	Health services available Per cent	1940[2] Number of cities	Cities reporting Number	Cities reporting Per cent	Health services available Number	Health services available Per cent	1950 Number of cities	Cities reporting Number	Cities reporting Per cent	Health services available Number	Health services available Per cent
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Group I...	70	49	70.0	49	100.0	93	71	76.3	71	100.0	93	93	100.0	93	100.0
Group II..	181	112	61.9	101	90.0	227	162	71.4	161	99.4	259	253	97.7	251	99.2
Group III	514	303	59.0	252	83.2	665	497	74.7	487	98.0	724	687	94.9	668	97.2
Group IV											2354	2153	91.5	1874	87.0

1 U. S. Office of Education. *School Health Activities in* 1930. James F. Rogers. Washington, U. S. Government Printing Office, 1931 (Pamphlet No. 21).

2 U. S. Office of Education. *Health Services in City Schools.* James F. Rogers. Washington, U. S. Government Printing Office, 1942.

Table 3 summarizes the information received. It is noted that the administration of the school health program is ordinarily done by the group which finances it. This was also the situation in 1940.

Table 3.—Agencies responsible for financing and administering school health services, in cities over 2,500, by city population group: 1950

City population group and function	Number of cities reporting	Percentage of school health services under			
		Board of Education	Board of Health	Joint authority	Other authority
	2	3	4	5	6
United States	2886				
Financing	.....	54.9	10.5	23.3	11.3
Administering ..	.....	60.2	10.9	23.0	5.9
Group I	93				
Financing	.....	60.2(71)	16.1(25)	19.4(5)	4.3
Administering ..	.....	61.3(65)	12.9(31)	22.6(4)	3.2
Group II	251				
Financing	.....	63.3(70)	13.5(21)	19.6(6)	3.6
Administering ..	.....	66.1(71)	13.9(23)	18.7(6)	1.3
Group III	668				
Financing	.....	61.1(77)	7.8(7)	22.3(11)	8.8(5)
Administering ..	.....	66.0(75)	8.1(9)	22.2(16)	3.7
Group IV	1874				
Financing	.....	51.2	10.8	24.4	13.6
Administering ..	.....	57.3	11.4	24.0	7.3

Note: Figures in parentheses are percentages for 1940 from U. S. Office of Education. *Health Services in City Schools.* By James F. Rogers, Washington, U. S. Government Printing Office, 1942.

The data presented indicate that there is a definite trend towards joint administration and financing of the school health programs. However, the school health program is still predominantly administered and financed by Boards of Education.

By regions, Board of Education administration and financing is highest for Middle Atlantic and West North Central and lowest for South Atlantic and East South Central. Correspondingly, these responsibilities for the Board of Health are reported as highest for South Atlantic and East South Central and lowest for Middle Atlantic, West North Central, and West South Central. Joint authority is highest for south Atlantic and East South Central and lowest for West North Central and Middle Atlantic.

United States.—For all the 2,886 cities reporting school health services, 60.2 percent were administered by the Board of Education; 10.9 percent by the Board of Health; 23.0 jointly by Boards of Education and Health; and 5.9 percent by other authorities.

In 1940, for all cities of 10,000 and above, 73.4 percent were administered by the Board of Education; 14.3 percent by the Board of Health; and 12.6 percent by joint authority. There were no

other administering agencies. In 1950, the Board of Education administration for cities of 10,000 and above had dropped from 73.4 percent to 65.6 percent; the Board of Health administration from 14.3 percent to 10.0 percent; the joint authority had increased from 12.6 percent to 21.3 percent; and "other" authorities had increased from 0.0 to 3.1 percent.

Group I.—Of the 93 cities reporting in Group I, 57, or 61.3 percent, indicated that the Board of Education was the administering agency; 12, or 12.9 percent, the Board of Health; 21, or 22.6 percent, joint administration; and 3, or 3.2 percent, other methods. The percentage range by regions for Board of Education administration is 100.0 to 30.0 with West North Central and West South Central highest and South Atlantic and New England lowest.

Group II.—Cities in the second group have the following percentages for administrative authority: Board of Education, 66.1; Board of Health, 13.9; joint administration, 18.7; and other methods, 1.3. By regions, the percentages of cities in this group having administration by the Board of Education range from 93.9 to 20.0. It is highest in Middle Atlantic and Pacific and lowest in East South Central and South Atlantic. Highest in the percentage of cities reporting the Board of Health as the administrative agency is New England with 33.3 percent and South Atlantic with 26.5 percent. Three regions — West North Central, West South Central, and Mountain — report no cities in Group II under Board of Health administration. Joint administration ranges from 60.0 to 2.0 percent, being highest in East South Central and South Atlantic and lowest in Middle Atlantic and Pacific.

Group III.—Cities in Group III indicate the following agencies as the administrative authorities: Board of Education, 66.0 percent; Board of Health, 8.1 percent; joint administration, 22.2 percent; and other, 3.7 percent. The percentages of cities in this group having the administration done by Boards of Education range, by regions, from 89.4 to 11.1 with the highest in Middle Atlantic and West North Central and lowest in South Atlantic and East South Central. Administration under Boards of Health varies from 31.7 percent to 0.0 percent with South Atlantic and East South Central highest and Mountain and Middle Atlantic lowest. Joint administration ranges from 50.8 to 5.9 percent with South Atlantic and East South Central highest and Middle Atlantic and West North Central lowest.

Group IV.—Of the four city population groups, Board of Education administration is the lowest in Group IV, with 57.3 per-

cent reporting this agency. The Board of Health administers in 11.4 percent of these cities. Joint administration is highest in this city size with 24.0 percent reported. The percentage range by regions for Board of Education administration is 84.0 to 15.0 with West North Central and Middle Atlantic highest and South Atlantic and East South Central lowest. Board of Health administration varies from 38.8 to 1.2 percent being highest in East South Central and South Atlantic and lowest in New England and Middle Atlantic. Joint administration ranges from 53.3 percent to 6.3 percent with South Atlantic and East South Central highest and North Central and Middle Atlantic lowest.

Financing

For all the 2,886 cities reporting, 54.9 percent were financed by the Board of Education; 10.5 percent by the Board of Health; 23.3 percent jointly; and 11.3 percent by other methods.

In 1940, for all cities of 10,000 and above, 75.4 percent were financed by the Board of Education; 12.1 percent by the Board of Health; 9.2 percent jointly; and 3.3 percent by other authorities. In 1950, the Board of Education financing for cities of 10,000 and above had dropped from 75.4 percent to 61.6 percent; Health Department financing had dropped from 12.1 to 10.0 percent; joint financing had increased from 9.2 to 21.3 percent; joint financing had increased from 9.2 to 21.3 percent; and other authority had increased from 3.3 to 7.1 percent.

Group I.—Of the 93 cities in Group I, 60.2 percent reported that the financing agency was the Board of Education; 16.1 percent, the Board of Health; 19.4 percent, joint financing; and 4.3 percent, other methods.

Group II.—In cities comprising Group II, the financing agency is as follows: Board of Education, 63.3 percent; Board of Health, 13.5 percent; joint financing, 19.6 percent; and other methods, 3.6 percent.

Group III.—In Group III the financing agency is as follows: Board of Education, 61.1 percent; Board of Health, 7.8 percent; joint financing, 22.3 percent; and other methods, 8.8 percent.

Group IV.—Corresponding percentages for Group IV are: Board of Education, 51.2 percent; Board of Health, 10.8 percent; joint financing, 24.4 percent; and other methods, 13.6 percent.

Regions.—By regions, the percentages for all cities having financing done by Boards of Education are highest in West North Central, Middle Atlantic and Pacific and lowest in South Atlantic, East South Central and Mountain—the range being from 82.0 per-

cent to 15.0 percent. Corresponding percentages for cities having the financing done by Boards of Health range from 30.6 to 2.4 percent, being highest in East South Central and South Atlantic and lowest in West North Central and Middle Atlantic. Joint financing ranges from 43.3 to 8.2 percent for the nine regions with South Atlantic and East South Central highest and West North Central and Middle Atlantic lowest.

Personnel Available for School Health Service

The extent to which school health service personnel is available in the various school systems is indicated in Table 4. The number

Table 4—Personnel available for school health services by percent of school systems reporting such personnel.

City population group	Type of personnel: Physician	Nurse	Dentist	Dental hygienist	Others	No personnel[1]
	1	2	3	4	5	6
	%	%	%	%	%	%
United States	62.9	85.4	40.4	15.9	11.7	9.4
Group I	94.6	100.0	80.6	51.6	39.8	0.0
Group II	81.8	97.6	59.7	31.6	18.2	0.8
Group III	71.9	94.6	47.0	21.8	11.2	2.8
Group IV	56.4	80.4	34.2	10.6	9.8	13.0

1. This column represents the school systems which reported that they had no school health service and consequently no personnel.

of school systems having various kinds of school health personnel is as follows: physicians, 2,004 or 62.9 percent; nurses, 2,720 or 85.3 percent; dentists, 1,258 or 40.3 percent; dental hygienists, 507 or 15.9 percent; other school health personnel, 372 or 11.7 percent; and "no" personnel, cities with no school health services, 300 or 9.4 percent.

In general, such personnel was more available along the seaboard States and least available in the mountain and central States. The larger cities had the highest percentages of professional personnel available, whereas the smaller communities had relatively less help. Nearly all the cities of 2,500 in population and above had nursing service or consultants available.

Physicians.—The availability of physicians ranges from 97.3 percent for Middle Atlantic and 92.7 percent for New England to 34.6 percent for West South Central and 33.0 percent for West North Central. By city size, it ranges from 94.6 percent for Group I to 56.4 percent for Group IV.

Nurses.—The extent to which nurses are available varies, by regions, from 99.1 percent for New England and 97.6 percent in Middle Atlantic to 62.4 percent in West South Central and 72.3

percent in West North Central. By city size, the range is from 100 percent for Group I to 80.4 percent for Group IV.

According to the Public Health Service, in 1951, 6,088 nurses were employed by local Boards of Education. This figure indicates an increase of 51.8 percent over the number employed in 1941, as compared with a 24.6 percent increase in the total number of nurses in all fields for that period. This number of school nurses also represents 23.9 percent of the 25,461 nurses in all fields in that year as compared with 19.6 percent in 1941. These data indicate that during the past decade there have been increases both in the total number of nurses employed by local Boards of Education as well as in the relative percentage of all nurses so employed.

Dentists.—The availability of dentists ranges, by regions, from 70.6 percent for Middle Atlantic and 59.4 percent for New England to 19.6 percent for West South Central and 18.6 percent for Mountain. By city size, the range is from 80.6 for Group I to 34.2 percent for Group IV.

Dental Hygienists.—The extent to which dental hygineists are available varies, by regions, from 32.9 percent for New England, 21.5 percent for Pacific, and 20.5 percent for Middle Atlantic to 4.1 percent for Mountain, 3.0 for West North Central, and 2.8 percent for West South Central.

School Nursing Service

The percentage of school systems reporting various plans for providing nursing service to schools is shown in Table 5. For the

Table 5.—Extent to which school nursing service is provided

City population group	Type of school nursing service: Specialized school nursing service	Generalized public health nursing service	Combination of (2) and (3)	Other plans	No-provision
1	2	3	4	5	6
	%	%	%	%	%
United States	54.1	30.6	7.9	1.7	5.7
Group I	64.3	25.0	8.3	2.4	0.0
Group II	68.7	19.9	7.1	2.4	1.9
Group III	69.3	19.5	7.3	0.4	3.5
Group IV	45.3	36.9	8.2	2.1	7.5

country as a whole, specialized school nursing service is the most common plan with 54.1 percent of the school systems so reporting. Another 30.6 percent of the school systems state that they have the generalized public health nursing service. A combination of these two plans occurs in 7.9 percent of the cities; 1.7 percent report

other plans; and 5.7 percent indicate that they have no provision for school nursing service.

City size.—On the basis of city size, the percentage of cities having a specialized school nursing service are approximately the same for Groups I, II and III, ranging between 64.3 and 69.3 percent. In Group IV, however, only 43.3 percent of the cities report such a service.

Regions.—The percentages of school systems by regions that reported special school nursing services range from 86.0 percent for Middle Atlantic to 11.2 percent for East South Central. There is an exact reversal in order of rank for the nine regions as regards the percentages of cities having a generalized public health nursing service, the figures ranging from 69.2 percent to 5.0 percent. The ranking is as follows, with the first figure representing the percentage for specialized school nursing services and the second figure, that for generalized public health nursing services: Middle Atlantic (86.0, 5.0; New England (76.6, 10.9); West North Central (62.4, 18.4); Pacific (53.6, 28.4); Mountain (50.5, 28.7); East North Central (48.0, 34.9); West South Central (35.9, 50.3); South Atlantic (16.5, 66.3); and East South Central (11.2, 69.2).

* * * * *

Immunization Schedules,—Newly revised immunization schedules to protect babies at an earlier age were announced March 26th by the Michigan Department of Health. According to the new schedules, immunization against diphtheria, tetanus, and whooping cough should begin when the baby is three months old. Formerly, the department recommended immunization for these diseases be underway by the time the baby was 6 months of age. These reasons were given by the department for recommending the start of immunizations at a younger age. 1. Over half of all whooping cough deaths in Michigan occur in children under 6 months of age. 2. Continued low prevalence of diphtheria is resulting in more rapid loss of artificial immunity in the population, with the result that more babies are being born without the protection that normally would be transferred from the immune mother to the baby. 3. Most deaths from tetanus are the result of trivial wounds that do not come to the attention of a physician. The state health department also recommends that smallpox vaccination be given at 5 months of age, whereas previously they recommended it be completed by the end of the first year. Booster doses for protection against diphtheria, tetanus, and whooping cough are recommended at the ages of 2-3 years; and for diphtheria, tetanus, and smallpox at 5-6 years of age and again at 10 years. *Jour. A.M.A.*, April 12, 1952, p. 1351.

TEAMMATES—TEACHERS AND SCHOOL NURSES*

By GERTRUDE E. CROMWELL

The school health program is a complex program. Some of it is obviously a special health procedure, but much of it is more subtle and frequently not thought of as part of the health program of the school at all. Many different people and departments are involved.

Unless he were previously oriented to the idea, if one were to say to the school custodian, "You are a member of the school health department," he might think you crazy since he thinks of himself as a maintenance man. Maintenance for what? Maintenance of a school environment in which children may work and grow in a healthful manner under healthful conditions. Were we to have space to analyze the different functions of each person in the school structure it is quite possible that each would in some way contribute a vital part to the health program of the school.

The School Nurse "Promotes Health",—It is within such a structure the nurse must make her contribution, and perhaps because so many people are involved, accounts for the varying ideas of what she should be expected to do. Many think her health functions are the most clearly defined functions of all of the school personnel. She is there to "promote the health of the children." At least that is the way more than half of the 300 school superintendents feel who have answered a questionnaire as to what they expect of their school nurses. How does she "promote health"?

What Is Health?,—We might first look at the children in the schools of this country. In degree of health, they vary from the crippled child in a wheel chair to the varsity athlete. Is the crippled child a healthy child? Here we need a definition of health. Bauer and Hill[1] define health as the "state of feeling well in body, mind, and spirit, together with having a sense of reserve power." Even within the scope of this definition, there lie great variances in individual health caused by differences in our heredity, our ways of life, our diets, the residual effects of disease and accidents, the way we use or have used various professional services, and perhaps as important as all of these together are the mental and emotional influences in our lives.

Up to this point we have considered two areas of school health about which the nurse must have information if she is to promote

1 *Health Education*, report of the Joint Committee on Health Problems in Education of the American Medical Association and National Education Foundation.

*Reprinted from the Journal of Health, Physical Education and Recreation, May, 1952, page 7.

the health of the children: (1) Who are the people in the school contributing to the health regime of the children and in what ways are they making their contribution? (2) What is the degree of health enjoyed by the different pupils and what are the causes of the differences?

Generally speaking, the children who are in attendance at school on any given day should be well children. But as we have defined the term "well" or "healthy" it indicates a degree only of health. The nurse then will promote health by assisting the children increase their individual degrees of health.

Individual Health Problems,—Last week I was visiting with a principal of a school in an underprivileged area in Denver and I asked him what some of the health problems were in his school that seem to be especially hard to remedy. As all nurses who have worked in schools or in general public health would agree, the most difficult one, he felt, lies outside the school in the way the children live—their housing, their food, available medical care, and the like.

This principal brought these problems right into the school. These underprivileged children do not get to school because they, or some member of their family, do not feel well, usually in a vague sort of way; or some of them fail in their school work and seem to be upset only at report card time; or others, because their personal hygiene is so poor, are rejected by their peers. These problems, with their beginnings in the home and important to the school, stand in need of help from the outside forces in the community.

The School Nurse's Challenge,—But right within the school, certain adjustments in the school must be made. Helping with these adjustments constitutes the most challenging part of a school nurse's work. How does she help? By trying to understand the problem the child has, which the school feels is important.

She learns this by a study of the home, by conferring with the other social agencies which may be helping the family, and by understanding how the parents and the child feel about the problem. When the nurse herself has a sympathetic understanding of the family, she may help his teachers understand what some of the child's needs are.

How the School Nurse Helps,—Perhaps I can illustrate this with a story of a child recently discussed in a case conference. A small boy of eight who has an average I. Q. for the school he attends is unable to do the work in his grade. He tries to gain attention of others by hitting, by taking things and offering them to some one of his choice, and by other unsocial ways. On the sociograms he is

never chosen by other children and worse is frequently rejected. The teacher has noticed that he chews on almost everything, craves candy, and is extremely irritable.

His physical examination revealed a 2+ sugar in the urine, a highly nervous child who fainted during the course of the examination. The mother reported fainting only once before. Other significant history was a premature birth, and a mild head injury two years before.

The social history is more involved. The boy is the son of his mother by a former marriage and now has two half sisters. The mother and step-father are considering divorce largely because of the tension over this boy whom the mother feels the father discriminates against. This, in brief, is the story of a hostile, anxious boy whose insecurity is created in the home.

Whether the physical symptoms are significant in themselves demands further study, but they also may be caused by the emotional climate of insecurity and uncertainty in which he lives. He cannot learn or be physically well until someone can offer him security, affection, and understanding. Certainly his teachers can do a great deal by trying to anticipate his moods and needs and whenever possible taking the pressures from him. The nurse will make a great contribution in helping to plan with his family for further physical and emotional care in the clinic.

The clinic is indicated in this case, but in another such case private care might be the choice of the family. Such cases as these may be found in any economic or social bracket of a community. Most of the problems which children bring to school cannot be solved alone by the nurse, the teacher, or the social workers—nor will the solution come easily, for the road is long and the problems of the emotions are deep-seated.

The Teacher's Contribution.—Since the teacher sees the children she teaches more than any of the other school personnel, there are certain responsibilities she may be expected to assume. Perhaps the most important contribution the teacher can make is to recognize the children in her room who are not up to their usual state of physical or emotional well-being and then to take appropriate action in their behalf.

Children who are acutely ill should be sent home—after someone in the school is certain that a parent or some other responsible adult is there to take care of the child. Children whose general health is not up to what would reasonably be expected of them should be noted and appropriate conferences with parents, nurse,

or principal be arranged. Other children may be helped by a few minutes of personal conference about a problem, by an hour's rest, or even by a chance to have some food when breakfast has been missed. Such activity in behalf of the well-being of a classroom of children is not so time consuming as it sounds on paper—it is just thought to be time consuming, with such special consideration usually necessary for only one or two children on any given day.

The Teacher's Responsibility,—What the teacher sees or feels about her children helps her in planning the best possible emotional climate of the classroom . This is the mental hygiene part of the school curriculum. The health instruction part of her work is also influenced by what she sees and knows about the needs of her children. She gears her instruction, too, to the health experiences planned for the children by other departments. Surely, no true teacher will ignore the motivation for good health instruction provided by the doctors' visit to the school, the audiometric or vision screening plans, or just plain old weighing and measuring.

Should the teacher be expected to do all of her screening tests on her children and make her report to the health service, with the nurse rechecking the deficient findings? Perhaps some of us differ on this point of the teachers' responsibilities for screening tests and how they shall be carried out. Personally, the writer prefers joint participation between teacher and nurse when there is a nurse.

Certainly, it is not too much to hope that each teacher feels most responsible for the use of the window shades, the ventilating possibilities of the room, and the heat controls. Keeping the room comfortable to work in may not be her entire responsibility, but she is the one to call attention to improper functioning of central facilities.

Along this line is the teacher's interest in having her classroom just as attractive as it is possible to have it. For many children, the school is the only really nice place they have in their lives. There are many things to do, see, and hear at school which a fair number of homes cannot or do not provide. Above all, the good teacher is cognizant of childrens' problems, both mental and physical, and makes a true attempt to help the children.

How the Nurse Fits In,—For the nurse to fit in the school as described here demands certain abilities. Since the schools are the primary educational organization of the community, the nurse will be more effective if she is familiar with current educational policies. To be truly aware of how the school she serves is integrated into current educatonal practice, she must sit in on some faculty meet-

ings, even though perhaps the topic is reading. Reading is pretty closely allied to the vision screening program and the follow through.

Another place where the nurse strengthens her orientation is in having time and opportunity for mingling informally with the teachers, as well as having more formal health conferences together.

The nurse must have some insights into curriculum building, so that she may know how and when to propose that the health program be given curricular time. The teacher will probably want to use the screening programs for health instruction motivation, but expeience has shown that often the teacher must be motivated first. How is that done? Surely not by the nurse coming to the door of the classroom and announcing that the hearing technician is here and would like to have seven or eight children now. Class time is all too precious for that type of planning. Good teachers plan their own time; thus the nurse must plan with the teachers (and I mean "with") in plenty of time to work the new or unusual health feature into the schedule.

The nurse will have to have some adequate evaluation techniques for presenting new health materials to the teachers. They should be sure of the accuracy of content, suitability for those expected to use it, reading level, and vocabulary suitability. Does the school approve the "personification" in some health material, the use of materials primarily prepared for advertisements purposes, movies, and other of the more technical aspects in the use of supplementary literature?

Medical Examinations,—As was noted, the routine services, such as vision and hearing screening, and weighing and measuring, will be done differently under school systems. The medical examination program may be done under different types of situations. There may be the school medical examiner whom the nurse assists, and he may examine all of the children in specified grades or children who have been selected by a teacher-nurse conference. More commonly approved today is the examination performed by the private physician on his own patients, and perhaps on a few of the medically indigent children assigned to him by the school.

With the growing trend for having the medical examinations made by the family physician, there are the problems of conveying to him information that the school has about the child's health status and there is need of the school to understand better the child's problems. Certainly, a report from the physician with proper interpretations and suggestions to the school for working with the

child is another must. These needs are predicated on the physician's understanding of the workings of the school and the possible adaptations in school programs which can be provided for children needing special attention.

Another unanswered problem is the ethical consideration which the private physician must give the family in reporting the child's health problems to the schools. Certainly individual physicians differ widely on this point. Perhaps the best answer to some of these problems is to have a uniform health record which is sent to the physician by the school and which contains information which the school has about the child. Also included on the record is space for the physician to return his own findings and interpretations. This health report from the physician then becomes a part of the permanent school health record.

The Follow-Through,—Following the medical examination, some use needs to be made of the findings. The last Conference on Physicians and Schools prefers to call this use of findings "the follow through" instead of "follow up." Under this comes the preparation or keeping of a cumulative health record on each child in the school program. This record should give not only the medical story but the teacher's observations of health need, the parent contacts and reactions, the completed treatments, and other pertinent health facts. Such a record, of course, presents a clerical problem in the use of nurse or teacher time. Who shall keep the records, make them out and do the filing?

In following through on health needs of children, the nurse will find it necessary to have a positive relationship with community agencies, which may be resources for the families needing the help as well as have a positive relationship with the families themselves. To gain such relationships means the nurse must be prepared to do good home visiting, parent counseling, and adult health education. Above all, the nurse's own personality must be such that she enlists co-operation and inspires effort among parents, children, and co-workers.

Summary,—As this discussion is drawn to a conclusion, I am well aware that many important phases of the nurse's work have been omitted. Among these are the problems of first aid and emergency care of the sick, transportation of ill children to their homes, problems concerning communicable disease, and preventive measures for certain of the communicable diseases. The failure to discuss these is not because they are not important, but because more has no doubt been written on these omitted problems than on the ones

discussed here.

The school health program is complex, as we said in the beginning, and the nurse must fit into as many areas of it as her time permits. If she works full time in a school, she has opportunity to do more different things than if she comes in on occasion to act primarily as a consultant to teachers and administrators, but which ever way she serves she is a help to the school program.—

* * * * *

School Health Program,—The Pennsylvania School Health Program is big business requiring full or part time services of over 2000 physicians, 1500 dentists and 1800 nurses. Since its inception in the school year 1945-'46 the program has expanded each year with the school year 1950-'51 showing a record of 914,918 pupils examined, 23,999 teachers and 8,736 school employes. Of the total number of pupils examined in this period 328,367 were reported with remediable medical defects.

Extension of the school nursing service has brought an increase in the number of corrections obtained for pupils with medical defects and in the general improvement of the health tone of the children of the Commonwealth.

Some of the outstanding corrections obtained include tonsils and nasal obstructions removed, 78,450; chest orthopedic defects treated, 6,886; rheumatic heart under treatment, 4,348; pathological heart conditions under treatment, 7,204; defective vision corrected with glasses, 61,838; other orthopedic conditions treated with appliances, 2,485.

In addition to the above, there are 69,646 pupils under treatment by the family prysician. The nurses made investigations of over 222,000 pupils in the interest of obtaining corrections. Adjustments made and modified programs provided for the handicapped, include vision, hearing, cardiac, posture, nutritional, homebound and miscellaneous, 25,000. From *Pennsylvania's Health Jour.*, March, 1952.

"SLEEP"

FRIEDRICH FEBEL
University of Buffalo

The significance of sleep, through the centuries, has been realized by men, but, actually, never understood. In his attempts to explain sleep, man has approached the subject on one or the other level—psychological, physiological, or chemical. A careful perusal of the research literature indicates that sleep is usually explained on the physiological level and is considered as the phenomenon to be studied, as it represents the maximal resting state.[1]

In discussing the meaning of sleep, the following essentials must be considered; first, it must be made clear that we actually sleep in parts. Kleitman, Cooperman, and Mullin have observed and obtained records of normal sleepers by means of an elaborate recording system attached to a bed. They found that normal sleepers make from thirty to sixty shifts of positions during a single night, with a period of about thirty seconds of activity per hour in units of five to ten seconds.[2] Secondly, there is a loss of muscular function before the disappearance of sensitivity to touch and sound. When we wake up, just the opposite occurs. We are conscious, and, without listening, hear sounds before we are voluntarily able to respond or react. Thirdly, the threshold of our sensitivity to smell and taste is more impaired than it is to touch, pain, or sound. Renshaw's defines it as follows: "Sleep refers to an artificial social description of the organism in respect to its responsiveness to its total environment."[3]

The many physiological theories of sleep indicate that its onset is either due to a diminution of available energy-producing materials or to an accumulation of the waste products of metabolism. The actual state of unconsciousness is variously accounted for.[4] Available studies that have been made of circulatory processes during sleep support the view that it is a period of repair. For example, Shepard[5] found that the amount of blood in the cerebral blood vessels increased during sleep, indicating the probability that the increased circulation makes for the effective repair of brain tissue.

1 Poppenburger, A. T. *Principles of Applied Psychology*, New York, Appleton-Century Company, 1942. p. 123.
2 Kleitman, Cooperman, N. R., and Mullin, F. J. *Studies on the Physiology of Sleep.* American Journal Physiology, 1933. pp. 105, 574-584.
3 Renshaw, S., Miller, V., and Marquis, D. *Children's Sleep.* New York, Macmillan Co., 1933. p. 8.
4 Kleitman, N. *Sleep and Wakefulness.* Chicago University Press, 1939.
5 Shepard, J. F. *The Circulation and Sleep.* New York, The Macmillan Company, 1914.

As far as the waste and repair theory is concerned, the amount of sleep (rest) that is essential would be a function of the amount of waste. This implies a difference not only in kind and amount of work that one does, but also with the individual. Some persons seem to preserve the balance between waste and repair more perfectly than others; therefore, they need less sleep and rest. Hence the rest periods, to be scientifically correct and to be successfully effective, must be adjusted to the work and to the individual.

The psychologist would have us believe that sleep is but a regression to infancy—a desire to pretend that we are back in our childhood days. A neurologist explains sleep by stating that the neuroses have lost connection with their neighbors due to an accumulation of waste products—toxins. The circulatory expert might point out that the blood is being pushed away from the brain bringing about a loss of consciousness.[6] Kleitman, of the University of Chicago, states in effect that we stay awake only as long as the brain is sufficiently stimulated by impulses. When fatigue reduces the intensity of these stimulating impulses, consciousness is lost and sleep sets in. He also points out that extreme drowsiness can be overcome by some form of muscular activity.[7]

Whatever its true physical basis, we now understand that the function of sleep is to restore mental and physical energy, to relax tension of the muscles, and to restore the body to its full powers of activity.[8] Jacobson expresses his views as follows: "Sleep is restful recuperation, which includes the removal of fatigue products and other waste products from tissues in which they have accumulated during previous activity."[9] Since it is a universal phenomena of man and animal, it may well be called instinctive. One may fall asleep without feeling at all fatigued, and whether one works or not, the desire for sleep overcomes one each day.

Sleep is an essential, and lack of it may lead to very serious illness. How long one can go without sleep before death occurs, we do not know. However, we do know that dogs die after 9 to 17 hours of wakefulness. The younger the animal, the more susceptible it is to the ill effects of lack of sleep.[10]

6 Laird, D. and Muller, C. *Why We Need It and How to Get It.* New York, The John Day Company, 1939. pp. 3-6.
7 "Science Looks at Sleep." *Hygeia,* April 1945. p. 283.
8 Kugelmass, I. N. *Growing Superior Children.* New York, D. Appleton Company, 1946. p. 269.
9 Jacobson, N. "What to Do About Sleep." *The American Home,* November 1944. p. 68.
10 Palmer, Gretta. "What Do You Know About Sleep?" *Woman's Home Companion.* April 1945.

Hundreds of clinical observations have been made and are being made at various colleges and universities throughout the country to determine the nature of sleep itself and the effects of loss of sleep. A great many of these studies have endeavored to test the intensity of a person's sleep by recording his movements during sleep. To trace many of these studies, the bed itself is fitted with an electrical device which records changes in posture. The results of these experiments show that there is a grouping of movements in the first hour of sleep, during its gradually increasing depth, and also an increase in the later hours, during its decreasing depth.[11] Thus it has been determined that movements of a sleeping person decrease as sleep deepens, but as we approach wakefulness, this frequency of movement once again increases.

A curve of sleep may be set up. This curve tends to show that the period of deepest sleep occurs after the first hour of the state of sleep. After recording the movements of 170 children during 347 nights, Renshaw came to this conclusion: "There is justification for the belief that the least motile and most recuperative sleep is indulged in during the first half of the stay in bed."[12]

Similar studies at Colgate resulted in a statement that most benefits of sleep are fully obtained in the first few hours, that the most refreshing sleep comes early.[13] However, Dr. Donald Laird, head of the Colgate University sleep laboratory, has pointed out that even though the last half of the rest period is one of light sleep, it is beneficial, because during that period muscles are under the least tension. Thus, while not the deepest sleep, it is a relaxed sleep.[14]

The effects of loss of sleep have been studied by deliberately depriving people of it. At the University of Chicago volunteers were kept awake for periods ranging from 60 to 114 hours. After the first 24 hours, attacks of drowsiness increased in their frequency and at times became almost overwhelming. These attacks could be overcome by a brisk walk or some other form of physical activity. This period of prolonged wakefulness apparently had little effect on bodily functions. The subjects suffered no loss of appetite, no loss of weight, and their general appearance was normal. They did, however, become irritable and cross. The surprising part was

11 Renshaw, Miller, Marquis. *Children's Sleep.* New York, Macmillan Company, 1933. pp. 14-16.
12 Ibid., p. 93.
13 Palmer, Loc. cit.
14 Laird, Donald and Muller, Charles. *Sleep—Why We Need It and How to Get It.* New York, The John Day Co., 1930. pp. 98-102.

the fact that after one night's sleep of eight or nine hours they were sufficiently recovered to return to normal activities.[15]

Along similar lines, Gilbert and Patrick found that after a period of no sleep for 90 hours, sleep for a small fraction of the hours lost resulted in complete recovery. Laslett found that after a period of 50-60 hours of wakefulness, two or three hours of extra sleep was all that was necessary.[16] Therefore, we may conclude that one average night's sleep will furnish all the recovery that extra sleeping can bring.

Other tests have brought out interesting facts. Terman and Hocking, through a series of studies, have shown that there is no relationship between the amount of sleep, intelligence and school success. Children of low intelligence appear to have as regular habits of sleep as do highly intellectual children.[17]

Experiments at Yale proved that mental agility is lowered as the result of an entire night's sleep. On the other hand, after the loss of a small amount of sleep, one can do about the same grade of mental work, but it takes more out of the body to do it.[18] Experiments with similar results were reported by Robinson and Hermann,[19] and also by H. R. Laslett.[20] They concluded that loss af sleep is detrimental to efficiency, but the extra effort put forth keeps that efficiency relatively high. We might say briefly: if one sleeps 6 hours instead of 8, he must expend more energy the next day to accomplish the same amount of work.

Proceeding under the hypothesis that the quality of sleep is the product of depth and duration, several scientists have set out to prove that the amount of sleep obtained in the first two hours is equal to that obtained in the following 6 hours. If this is true, then a person who sleeps in two installments of 2 hours each would have sufficient sleep to maintain full health. Although such experiments have been performed successfully, it is not probable that they will alter the sleeping habits of the human race. It is said that Robert Davis of the University of Colorado has practiced this sleep schedule for 20 years. Others who have tried it soon return to their normal habits, simply because the schedule does not fit in with our

15 *Science Looks at Sleep.* Hygeia. April, 1945. pp. 258-259.
16 Terman and Almack. *The Hygiene of the School Child.* Houghton Mifflin Company. pp. 378-380.
17 Ibid., pp. 375-377.
18 Laird and Muller. op. cit. pp. 17-20.
19 Robinson, E. S., and Hermann, S. O. *Effects of Loss of Sleep.* Journal of Experimental Psychology. pp. 19-33.
20 Laslett, H. R. "An Experiment on the Effects of the Loss of Sleep." *Jr. of Experimental Psychology.* pp. 45-58.

way of life.[21]

After years of testing and observing at the Colgate University Sleep Laboratory, Dr. Laird still feels that the old 8 hour rule is a good one for most adults to follow. He points out, however that the need for sleep is largely an individual matter. There are people who get along just as well on 6, or even 4, hours of sleep per night, while others may need 9 or more.[22] Probably those people who get along on fewer hours, sleep under better conditions and have learned how to get the most out of their rest. They are fortunate in their ability to sink into a profoundly relaxed condition that favors rapid recuperation. They relax more completely mentally as well as bodily. In addition to his general efficiency, the real test of whether or not a person is getting enough sleep is probably his own sense of well-being.

Much has been written on how much sleep the average child needs, but if the statements of the previous paragraph are true, it follows that there are individual differences among children in their sleep needs. There is no more a "normal" duration of sleep for a certain aged child than there is a "normal" height and weight for that child. Height and weight charts can be used only as a very general guide because they do not take into consideration such factors as body build, racial characteristics, and inheritance of family traits. Therefore, I would say, since every individual is different, he will meet his own sleep requirements to satisfy his needs.

Children should actually and deliberately be taught how to rest or relax after a period of activity. For the preschool child, this rest is his daily nap. Not too much stress should be put on the necessity of the child going to sleep. Of course, nothing stimulating should be present in the environment. The child should not be allowed to take a toy or a book with him. If the home is made quiet and restful a certain part of each day, the feeling of relaxation will come to the child. This rarely fails to induce sleep.[23]

The preschool child (or an older child for that matter) should not be "dragged in" from his play just at mealtime. There should be a period of several minutes during which he can make himself ready for eating. Also following a meal, there should be a time of comparative quiet. This might be a good time for "daddy" to get acquainted with his offspring.

The modern school program can very adequately adjust these

21 Science Digest —"Sleep" — *Science Digest.* December 1943. pp. 31-33 (condensed from the Industrial Bulletin of Arthur D. Little, Inc.)
22 Laird and Muller. op. cit. p. 113.
23 Emerson, William. *Nutrition and Growth in Children.* pp 83-85.

periods of activity and rest. Periods of mental work are interspersed with periods of physical activity. Adequate play space is provided both indoors and out. Fatigue at a given task may not demand a real rest, but a change of occupation—either to one that is more active, or one that is less so. The modern school room is large and airy and furnished with movable seats and desks, allowing plenty of freedom of movement. The program is usually pliable, allowing the child great freedom in a choice of his activities. All of these factors lessen emotional tension, thus reducing fatigue.

As a child enters the intermediate and upper grades, he should begin to understand the purpose back of a program of this kind. There should be definite health instruction so that the child can be made to see why there are rest periods after the noon hour; why physical activity follows mental activity; why some periods are free-play periods, while others are organized. He should be taught to understand the principle that "by resting we do more work with less fatigue."[24]

The matter of rest is especially important to adolescents, who, in our fast-moving, hectic life, are so likely to go beyond the normal fatigue point. Martha May Reynolds has said, "Modern adolescents need an hour or so unscheduled each day to use as they will."[25] Quite often their "rest" takes a very unconventional form, such as sprawling on the floor or draping the legs over the back of a chair. Other times they might aimlessly wander about, fussing with the radio or glancing through a magazine. Yet, as rest, it is valuable, much more valuable than dashing from one activity to another.

Rest can be almost as constructive as sleep, and by taking advantage of opportunities to relax, the imperativeness of night sleep is lessened.

Good habits of sleep can be developed from the very beginning. First, we must help the child to get the correct attitude toward sleep. Never let him think of sleep as a punishment. One may give the child the impression that sleep is a punishment by taking him away from an exciting game or calling him in from outdoor play. An attempt should be made to create a situation which is conducive of relaxation. A "scene" over going to bed certainly does not do this. Things should be made quiet. There should be no suggestion of excitement, no bustle to get the child out of the way. Anxiety on the part of the parents as to whether the child will go to sleep

24 Laird, Donald, and Muller, Charles. *Sleep—Why We Need It and How to Get It.* New York. The John Day Company, 1930. p. 39.

25 Reynolds, Martha May. *Children, from Seed to Saplings.* McGraw-Hill Book Company, 1939.

will certainly make him more tense and, hence, more wakeful.

Bedtime should be regulated by the clock; and the child, as he grows older, should understand this routine. He should have his own bed in his own room if possible. A fairly hard bed is better than one that is too soft, and the coverings should be as light as possible while still furnishing enough warmth. The air in the room should be circulating, but make certain that the child is not in a direct draft. Once all physical needs of the child have been taken care of, he should be tucked into his bed, bade goodnight, and left to go to sleep.[26]

If the child has difficulty getting to sleep, possible causes should be investigated. His breathing may be blocked by enlarged tonsils or adenoids. He might be suffering from indigestion or improper food. Drinking liquids before retiring puts an increased pressure on the bladder, causing restlessness. A factor in the environment, such as an exciting radio program, might be the cause. Whatever the disturbance, an effort should be made to discover and eliminate it as soon as possible.

Renshaw conducted an interesting experiment in which a group of children were shown 58 different motion picture programs in the evenings before retiring. Their movements during sleep were recorded and it was found that the greatest changes occurred during the forepart of the night. Thus the most recuperative sleep was lost.[27] It would seem that any stimulating situation, such as a radio program or exciting bedtime story or play, would disturb the child in a similar manner.

26 Kugelmass. op. cit. pp. 269-272.
27 Renshaw, Samuel, Miller, Vernon, and Marquis, Dorothy. *Children's Sleep.* New York, Macmillan Company, 1933.

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Transportation,—Monsieur Verdin, operator of the school bus-boat in the picture story, earns his living by fishing for oysters and —yes—SHRIMP. Maybe the story should have been titled "Shrimp Boats Are A'coming." Twenty two bus-boats are used in the six Louisiana parishes of Catahoula, Iberville, Lafourche, Plequemines, St. Charles and St. Martin. They haul an average of 248 pupils daily over one way routes of 133 miles. Most Louisiana pupils use the prosaic bus of which Louisiana operates about 4,000 transporting some 240,000 pupils. The picture story was made possible through the splendid cooperation of R. O. Moncla, superintent, and V. J. Roux, supervisor of schools and transportation in Lafourche parish. *Safety Education,* May, 1952, p. 1.

VISION PROBLEMS OF SCHOOL CHILDREN

GORDON L. WITTER, M.D., *Redlands, California*

The object of a visual testing program is three-fold: (1) To assure educators that the eyes of each child are adequate for normal development in school life. (2) To prevent progress of pathologic conditions by their early recognition and treatment, and (3) To help the visually handicapped by early diagnosis and correction by glasses of refractive errors; institution of special assistance to individuals or special classes.

The people who are concerned in the program are many. First, there is the teacher. Perhaps, she is most important because she observes the child when doing fine close work and also at play. She is trained and therefore cognizant if the child grimmaces, blinks frequently or rubs its eyes when reading or drawing; whether he or she has the ability to take directions. She notices the child's span of attention and the ability to listen. The teacher in many instances is actually the one who conducts the visual test. Secondly, the city or county school nurse plays an extremely important part in the program of visual testing. She must understand the equipment to be used, the performance of the various tests and keep accurate records. The latter become part of the child's school record.

The Redlands Grade Schools have selected as equipment for testing, "The Massachusetts Vision Test". This test is effectively conducted, simple, brief so that many may be tested in a short time. It is economical, provides detection of latent errors in binocularity, of latent errors in refraction, as well as reduced visual acuity and it has a standard artificial illumination of sixteen candle powers of light. It is light to carry, easy to set up and interesting to the child who is being tested. The school nurse routinely tests, each year, all first and sixth grade students. It is impossible to test all children of all grades each year, but by examining the first graders early in the school year, many with visual handicaps are found and the parents notified.

Bodily growth and development between the ages of six and eleven continues rapidly and many refractive errors develop and some latent defects in ocular motility become evident. It is therefore timely that all sixth grade students be re-tested before starting the more intense academic years of Junior High School. Ther ecords of those first grade students found to have poor vision, muscle problems and the like are filled separately and these children are rechecked yearly to be sure that their eye condition is corrected and

progress in school is normal. This phase of the work is handled by our school nurse in an excellent manner.

I wish to commend Miss Smiley for the excellent work she does in our community. Thirdly, the parents are important. They, too, can and should be constantly on the alert for behaviors of their child which indicate poor or difficult vision. But, they can be especially helpful by example: they can read! Example is a wonderful thing for a child, and if mother and did would spend more evenings pleasantly reading and discussing what they have read, their children would be more likely to take up the habit of reading. The best way to improve speed and comprehension of reading is to read! Fourth and last, but not least, is the child. Here is the object of our concern. We all want our children to be successful in school and in later life. To that end we dedicate the phase of our responsibility, "The Vision Testing Program". The teacher, the nurse and the parents have observed and tested the child and the oculist has examined the child's eyes and a report or recommendation is now available for improvement of the child's welfare. Let us examine it. First, let me say that a report should embody the following: (1) Observations of the school teacher. These observations are in reality the reasons for a visual test. (2) Results of the school vision test and (3) The accurate record of the complete eye examination conducted by the family's oculist.

Certain general statements can be made which will help us consider specific ocular problems so that our emotions will not prejudice ourj udgment: The economic situation of the child has no bearing on visual efficiency. In other words the eyes of poor children are just as good as the eyes of well-fed rich children. Psychological factors do enter into visual problems. Suppressions, transferences of the effect of psychic trauma, and visual black occur in maladjusted children. Dr. Walter Lancaster has made the statement: "Seeing is only half ocular, the rest is cerebral". It is true that a well adjusted, properly motivated child will utilize his visual system well in spite of refractive errors. General constitutional diseases such as, for example diabetes mellitus, rheumatic fever, kidney diseases and metabolic disorders do effect the eye and delay healthy motivation of the child. These diseases should and will be considered by the oculist with respect to their influence on visual efficiency. The oculist should be an important person in the program. He should examine thee yes of all pre-school children and responsibility for such examinations should rest with the parents. This is not practical now. In the meantime he remains a consultant

and adviser.

Refractive errors are important. It is interesting that the child who is far-sighted and has normal 20/20 vision is frequently a poor reader. Near-sighted children on the contrary are good readers and read for fun. Such statements are true from a practical standpoint but are relative. In other words good readers are also to be found in the far-sighted group. Farsightedness is that refractive condition of the eye where good vision can be obtained both at a distance and at near providing the child will exert enough effort and is capable of maintaining it. Effort is the thing and because in high degrees of farsightedness considerable effort or too much effort is necessary the child fatigues quickly, print blurs and reading is discontinued. In such instances distance vision and activities utilizing distance vision predominately, are better appreciated and more enjoyed. Athletes and the mediocre to poor student group are chiefly farsighted individuals whereas the good student and great readers are made up of near-sighted ones. For near sightedness is that refractive condition of the eyes where distance vision is impossible beyond that which the eye attains when at absolute rest and where close work is accomplished with the expenditure of little to no effort. All eye work is made easier for the farsighted child when proper glasses are applied and for the near-sighted child a new and interesting environment beyond their reach is revealed.

A visual testing program is essential. In the future it should be extended to Junior and Senior high school levels. Read at the Fall Institute, California Division, American School Health Association, November 17, 1951.

* * * * *

Rabies in Foxes,—The Pennsylvania state game commission and citizens of afflicted areas are carrying on a drive to rid the state of 95,000 foxes as carriers of rabies, according to the Associated Press, March 14. Many persons have been bitten by foxes and at least two have died. The foxes have attacked men, women, and children, bitten dogs, poultry, sheep, pigs, and cattle, and hurled themselves at automobiles on the road. The most afflicted areas are in eastern Pennsylvania and part of the west, although marauding foxes have been reported also in the midland. Some county and township officials have urged people to stay away from highways and streets in smaller towns in the late afternoon and night. *Jour. A.M.A.*, April 12, 1952, p. 1352.

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EDITORIAL

Official Orders,—While we are criticizing others, let us have a full measure. This office receives numerous orders for reprints, and, particularly, for back copies of the Journal.

We hear and read a great deal of criticism on unnecessary expenses piled up by "bureaucrats." The experience of this office would indicate that not all of these wastes emanate from federal, or even from state, bureaus. Not infrequently they come from libraries.

Repeatedly, we get orders for a single copy of the Journal of School Health (the price, 35c), and they request that it be a charge and that bills be sent in quadruplicate.

By the time we set up a bookkeeping account for such an order and send out bills in quadruplicate, the office expense would far exceed the total price of the Journal. Such small orders can be filled only on a prepayment cash basis.

We understand, of course, that there has to be some check in a large department on these petty expenses, but the cumbersome arrangement set up in altogether too many cases makes for great waste of time and of funds.*C.H.K.*

The pest of advertising,—If it were possible to accomplish it, we could cut out a considerable portion of the cost of living by elim-

inating advertising by mail. Probably there would also be a net saving to the U. S. Post Office Department, saving of paper, and a hugh conservation of time and energy that is now wasted by someone opening this mail.

This morning—and this condition of affairs is not exceptional—we received on this office twenty-six pieces of mail. Only five of these had material relating directly to the effort we are trying to carry on, and these were first-class mail. All the rest—21 pieces—were advertising, and most of it worthless trash, ranging all the gamut from pills to automobiles, and propaganda.

We are thinking seriously of setting up an office rule that all mail not of the first class is to be dumped into the waste basket—unopened.

Worthwhile information comes to us through the advertising and other pages of professional journals or by word of mouth. Much of the trash this morning had been sent us several times before, and in several cases there were two parcels of the same material. Such reiteration may be considered good salesmanship by the would-be-experts, but in the great majority of cases it is merely irritating and resistance building.

Here is for bigger waste baskets, more quickly filled.—*C.H.K.*

Punctuation,—is debatable. However, if writers, would in general follow these suggestions, there would be less wear and tear on editors, and some rejected manuscripts might be accepted.

Comma in Series.—Use comma before the conjunction in series, as: *George, James, and John; he could not read, write, or figure; handsome, rich, but unhappy.*

Comma between Adjectives.—Use comma between adjectives not connected by a conjunction, unless one adjective is included in thought with the matter modified by the adjective which precedes it, as: *A cold, windy day; but, a beautiful young lady.*

Comma before Quotation.—Before a quotation run in as a paragraph, if the quotation consists of one sentence use a comma, or of more than one, use a colon.

Comma and Semicolon.—In sentences containing two sets of subjects and predicates—in other words, two clauses—connected by *and, but,* or some similar conjunction, the clauses should be separated by a comma; and if either clause is very long or contains a subordinate clause use a semicolon. The foregoing sentence illustrates the use of the semicolon.

Colon with "as follows," etc.—At the end of a paragraph, after words or phrases like *as follows, the following, namely, thus, said, remarked,* etc., use the colon and no dash. Source unknown.—*C.H.K.*

ABSTRACTS

Football Fatalities,—A football player in a high school or college game today is less apt to receive a fatal injury than he would be if he were a pedestrian or a driver of a motor car. This is a conclusion drawn from the experience of 616,000 high school players and 65,690 college players as reported in the 20th annual survey of football fatalities, 1931-1951, prepared for the American Football Coaches Association by the Committee on Injuries and Fatalities of the association.

The average incidence of a fatal injury to a high school player last year was 0.97 per 100,000 players, for college players it was 1.52 per 100,000 players.

FOOTBALL FATALITIES, 1951

	Direct	Indirect
Sandlot	3	3
Semi-pro	2	1
High School	6	3
College	1	1
Totals	12	8

This, the report indicates, is a gratifying decrease in the fatality rate which has been brought about since the committee on injuries and fatalities was instituted. The twenty-year rate for football fatalities is 1.5375 per 100,000 players for high school football and 2.3565 for the college game.

It was in 1931, when there were 49 football fatalities, 31 directly attributed and 18 indirectly attributed to the game, that E. K. Hall of Dartmouth, then chairman of the National Collegiate Athletic Association, asked the late Fielding Yost of Michigan and Dr. Frank S. Lloyd, then of NYU but now at CCNY, to make a questionnaire study of football fatalities reported in the newspapers. Since 1932 the report has been made by a committee under the chairmanship of Dr. Floyd R. Eastwood, Los Angeles State College.

The 20 annual studies have resulted in:

(1) Factual information which immediately gave a balanced picture of the football fatality problem;

(2) Rule changes, such as the elimination of the "flying wedge on kick-off" and the adoption of the "dead ball" rule;

(3) More attention to teaching the fundamentals of tackling and blocking;

(4) Better medical examinations as well as examinations before the season started; and

(5) Special consideration of equipment needs in order to protect players on the offense and defense.

One official and 370 players in sandlot, pro and semi-pro, high school and college football have been direct fatalities of the game during the period of the study. One hundred and eighty additional persons have died from causes attributed indirectly to the game. Although the period of the study extends over 21 years there was no study made in 1942. The report, then, covers 20 years.

Practically one-half (48.8 per cent) of the direct deaths were caused by head injuries. Spinal injuries accounted for 22.1 per cent.

"It is known," the report states, "that spinal injuries result from traumatic blows to the top of the head."

"One real need still exists," the report emphasizes, "—better headgear liners and suspensions."

Beginning in 1948, Dr. Charles Lombard and Herman Roth, with their staff at the University of Southern California, have made some studies and speed movies on:

(1) The efficiency of various types of helmets;

(2) The helmets worn by players fatally injured as a result of blows to the head;

(3) Speed movies to determine the speed action of the knee when a player is running; (The studies show velocities of 30 feet per second. In experiments with humans, collisions with objects at 7 feet per second produce severe headaches.)

(4) The best possible types of materials for the shell and liners of headgear.

The committee makes seven recommendations with the intention of decreasing head injuries. In summary they are: A call for immediate research on helmets; the institution of a warm-up period before any players enter the game (the study shows that a player's first five minutes of play, whether on first entry or reentry to the game, are the most dangerous); teaching tackling to emphasize the elimination of contact between a player's head and his opponent's thigh or knee; requiring, by rule, the wearing of knee pads or padded pants; a thorough inspection of all headgear to

assure the discard of helmets in which the suspension harness cannot prevent the crown of player's head from coming in contact with the helmet; the use of only those helmets which have "adequate" absorptive materials between the head suspension and (a) the crown of the helmet, (b) the back of the helmet shell, and (c) the sides and front of the helmet shell; and the adoption on no restrictive legislation at present against any type of the present headgear shells.

DIRECT FATALITIES: TYPE OF ACTIVITY ENGAGED IN 1931-1951*

Type of Activity	Number	Percentage of Total
Tackling	119	32.1
Blocking	35	9.4
Under a pile-up	17	4.6
Tackled or blocked carrying the ball	44	11.9
Catching a pass	18	4.9
Running interference	9	2.4
Blocked	14	3.8
Punting or kicking	6	1.6
Not specified	109	29.4
TOTALS	371	100.0

*No study was made in 1942.

During the 20 years studied approximately one-quarter of the deaths (26.2 per cent) were due to abdominal-internal injuries. Last year there were no fatalities reported as resulting from this cause.

Direct Fatalities: Type of Game 1931-1951*

Type of Game	Sandlot	Pro Semi-Pro	High School	College	Football Official	Total	Percentage of Total
Scrub or Pick-Up	63	1	1	0	0	65	17.5
Touch Football	11	0	3	0	0	14	3.8
Regular Practice	0	0	31†	3	0	34	9.2
Squad Scrimmage	1	0	32	6	0	39	10.5
Interclass	0	0	4	2	0	6	1.6
Regular Game	1	48	113‡	16	1	179	48.3
Not Specified	13	11	6	4	0	34	9.2
TOTAL	89	60	190	31	1	371	100

*No Study was made in 1942.

†Spring practice 1947. One Case.

‡One case warming up prior to start of regular game (1946).

Direct Fatalities: Cause of Death 1931-1951*

Causes	Sandlot	Pro & Semi-Pro	High School	College	Football Official	Total	Percentage
Head Injury	51‖	29§	89†	12	0	181	48.8
Spinal Injury	10	15	47	10	0	82	22.1
Abdominal-Internal Injury	26¶	11	50	9‡	1	97	26.2
Not Specified	2	5	4	0	0	11	2.9
TOTALS	89	60	190	31	1	371	100.0

*No study was made in 1942
†One, traumatic blow to nose, meningitis developed in 24 hrs. (1941).
¶Pulmonary Embolism (1945), one case.
‡Massive pulmonary hemorrhage and edema (1944). One case.
§Traumatic blow to nose, causing staphyloccocic septicemia (1946), one case.
‖Traumatic blow to nose causing rupture of the blood vessals of the neck, one case, 1951.

Fatalities Directly and Indirectly Due to Football 1931-1951*

Year	Sandlot			Pro & Semi-Pro			High School			College			Ftb. Off.		Total		
	Total	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Direct	Indirect	TOTALS
1931	18	10	8	3	3	0	20	10	10	8	8	0			31	18	49
1932	11	8	3	6	6	0	17	8	9	3	2	1			24	13	37
1933	15	8	7	4	4	0	19	10	9	5	2	3			24	19	43
1934	9	4	5	4	4	0	18	12	6	5	3	2			23	13	36
1935	10	4	6	7	7	0	25	14	11	5	3	2			28	19	47
1936	16	11	5	3	2	1	20	12	8	5	1	4			26	18	44
1937	6	3	3	4	4	0	19	13	6	2	0	2			20	11	31
1938	7	3	4	4	3	1	13	8	5	5	2	3			16	13	29
1939	2	1	1	2	1	1	10	6	4	4	3	1			11	6	17
1940	3	2	1	1	1	0	9	7	2	2	1	1			11	4	15
1941	5	5	0	4	3	1	9	6	3	0	0	0			14	4	18
1943*	0	0	0	1	1	0	10	10	0	0	0	0			11	0	11
1944	6	5	1	2	2	0	10	9	1	1	1	0			17	2	19
1945	5	3	2	0	0	0	4	3	1	0	0	0			6	3	9
1946	5	1	4	5	5	0	13	13	0	2	2	0			21	4	25
1947	6	4	2	5	4	1	16	14	2	2	1	1	1	1	24	6	30
1948	9	6†	3	5	3	2	12	9	3	0	0	0			18	8	26
1949	10	7	3	5	3	2	10	9	1	1	0	1			19	7	26
1950	2	1	1	2	2	0	13	11	2	2	1	1			15	4	19
1951	6	3	3	3	2	1	9	6	3	2	1	1			12	8	20
Total	151	89	62	69	60	9	276	190	86	54	31	23	1	1	371	180	
																GRAND TOTAL	551

*No study made in 1942.
†One is a fatality, received after compilation and publication of 1947 Football Fatality Feport.
Safety Education for May, 1952.

Direct Fatalities: Position Played 1931-1951*

Position	Sandlot	Pro & Semi-Pro	High School	College	Football Official	Total	Percentage
Fullback	2	3	18	3	0	26	7.0
Halfback	9	13	48	7	0	77	20.8
Quarterback	0	6	12	1	0	19	5.1
Backfield	4	5	0	0	0	9	2.4
End	2	6	27	6	0	41	11.1
Tackle	1	4	17	4	0	26	7.0
Guard	2	3	12	2	0	19	5.1
Center	1	0	14	3	0	18	4.9
Official	0	0	0	0	1	1	.27
Not Specified	68	20	42	5	0	135	36.4
TOTAL	89	60	190	31	1	371	100.0

The report will be available, about May 1, from D. O. McLaughry, secretary-treasurer of the American Football Coaches Association, Dartmouth College, Hanover, N. H.

In the September, 1950, issue Safety Education printed an article written by Joseph P. Dolan, Purdue University, Lafayette, Indiana, concerning non-fatal injuries to football players.

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REVIEW

"Selected Team Sports for Men." By a group of authors: *John H. Shaw,* Editor. W. B. Sanders Co., Philadlephia, 1952.

Recognizing the need of a much wider variety of team sports for men than the narrow and poorly adapted program in school and college all too frequently confined to football and basketball, the authors have done a good and much needed job of getting together in one convenient text outstanding factors relating to facilities, organization and planning, and then the presentation of the special facilities, individual equipment, and the techniques of play for eight of the less common but extremely valuable team games.

Knowledge of these games and of the techniques of these games is greatly needed. It will increase the use of their use—some of them milder and some quite as strenuous as the more publicibed football and basketball.

Moreover, it will tend to make less common the use of the extremely unfortunate terms "major" and "minor" as applied to school and college sports. To the person playing,, his particular sport is a "major" sport; and after all, that is what counts in the education and development of the individual.—*C. H. Keene.*

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MEETING

The American School Health Association and American Public Health Association at Cleveland, Ohio, October 19th to 24th, 1952.